

Application No. 09/543,764  
Inventor: John L. Howes

Art Unit 2165

Examiner: James H. Zurita  
Filed: 5 April 2000

**AMENDMENT A - CLEAN VERSION*****Specification Including Claims*****NOMENCLATURE**

10	consumer	30	transport
11	internet terminal	31	dedicated terminal
12	personal computer	32	kiosk
13	modem connection	33	telephone
14	computer monitor	34	open container with liquid coating base
15	visual display screen	35	open container with colorant
16	internet web site	36	containerized liquid coating product
17	computer	37	scanner
19	video camera	39	confines of a local retailer
20	customer order subsystem	40	location identified by customer address
21	production subsystem	41	portable internet device
22	production line	45	supplier personnel
23	container(s)	46	facsimile transmission
24	liquid coating base	47	facsimile reception
25	colorant	50	label
26	container identifier	51	customer order information
27	shipping	52	digital code
29	confines of remote supplier	53	railroad tank car
		54	pipe line
		55	fifty-five gallon drum
		56	empty expandable container
		57	full expandable container
		59	collar

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**AMENDMENT A - CLEAN VERSION****DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

**FIG 1** depicts a consumer 10, which for purposes of the instant invention is defined as a person who is interested in purchasing containerized liquid coating product including paint, primer, stain, varnish, mastic or other adhesive, et cetera, which requires the addition of colorant in order to achieve a particular, custom, color, in front of and operating an internet terminal 11 depicted therein as comprising a desk top type personal computer (PC) 12 possessing a modem line connection 13 to a public telephone exchange (PBX), a monitor 14 possessing visual display screen 15 upon which an interactive web site 16 comprised of software held by a server computer may be viewed after accessing over the internet. The consumer 10 accesses the web site 16 by inputting an appropriate internet address such as the domain name, which may first be identified with the use of an internet search engine, and is able to select and order upon this web site 16 containerized liquid coating product 36 which requires colorant addition to achieve any one of a plurality of particular, custom, colors which are further represented upon the visual display screen 15.

The web site 16 provides information sufficient to enable both selection and ordering of containerized liquid coating product including that which requires colorant addition to achieve a particular, custom, color which is conventionally available only from a local retailer and which is unavailable from a manufacturer of such product. This information preferably identifies and describes liquid coating base 24 characteristics wherein the base material is a liquid coating product of standard color which is generally available to local retailers from a manufacturer or distributor intermediary to the two. Liquid coating base 24 characteristics are determined by the use of oil, water, latex, and polymer compositions and are readily described as suited to various exterior and interior applications wherein both the surface and the environment conditions are readily recognized as criteria for determining suitability.

Oil based liquid covering product 36, for example, is generally considered as superior for exterior and severe environment applications while water based latex liquid covering product 36 is

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generally preferred for interior applications of less than severe environments. Liquid coating bases 24 are also typically characterized by the resulting dry finish, e.g. gloss, semi-gloss, and flat, which are generally associated with composition and the environment suitable. Flat finishes are typically preferred for interior and exterior wall while semi-gloss or gloss is typically preferred for trim. Bathrooms and kitchens are considered to be moderately severe environments for which semi-gloss polymer and oil based paints are considered suitable for walls. Water based liquid coating bases 24 are generally less expensive and easier to use than oil based liquid coating bases 24.

For the purposes of the instant disclosure it is recognized that a variety of liquid coating bases 24 are available in a relatively restricted number of standard colors from the manufacturer and that the performance of a liquid coating product 36 and hence the suitability of the same for covering a given surface depends upon the composition of the liquid coating base 24. The surface is quite relevant to suitability. An unfinished drywall surface is generally considered to require a water based primer prior to application of the water based finish liquid coating while the same may be used on unfinished wood trim though oil bases are generally considered to be superior to water bases and unfinished metal is generally considered to require an oil based primer prior to application of an oil based finish coat. Walls are far more quickly covered with the use of a roller than a brush and if water based liquid covering product 36 is used the rollers may readily be cleaned and used again while this is generally considered impractical with an oil based liquid covering product 36 which is generally more difficult to clean up as requiring a solvent other than water.

The application, therefore, is of large importance to proper selection of an appropriate liquid coating product 36 and it is considered that information regarding the same preferably be available on an internet web site 16 which may further allow a consumer 10 to input information regarding the application, e.g., location and surface condition, which the software comprising the web site 16 may readily use as a guide for recommending liquid coating bases 24. The expense of any liquid coating product 36 is further determined largely by the liquid coating base 24, regardless of the particular, custom, color selected.

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While selection of an appropriate liquid coating base 24 may be largely sufficient for the selection of an appropriate primer which will be completely obscured by the finish coat, and may similarly be largely determinative of substantially transparent liquid coating product 36 such as varnish, as well as being determinative of adhesives such as mastic which are covered by another surface such as tile, the most important characteristic of the finish coat obtained with the application of a liquid coating product 36 for most people is generally considered to be the color which is endlessly variable and invariably obtained by the addition of varying quantities of different colorants 25. The ability of a consumer 10 to select from a large number of different colors and order liquid coating product 36 of a particular, custom, color directly from a supplier without having a local retailer open a container of standard color paint, add colorant 25, and thoroughly mix the resulting paint which the consumer 10 must then transport from the local retailer is considered fundamental to the benefits derived from a fulfillment of the principles relating to the instant invention.

Another aspect considered important to an average consumer 10 is the appropriate quantity. A can of paint may specify a coverage range in square feet but this may be beyond the comprehension of the novice or less mathematically inclined consumer 11. While area in square feet is simply the product of the two relevant linear dimensions for a rectangular area, and most walls are rectangular, the actual usage is also dependent upon other factors such as temperature, which affects the viscosity of liquid coating product 36 and hence the thickness of the coat applied; and the quality of the surface to coated. A given area of concrete block wall, for example, will require far more liquid coating product 36 than a drywall surface of the same area. The method of application is also relevant. Application with a brush is inherently more efficient than with a roller which absorbs liquid coating product 36 which cannot effectively be retrieved and also requires a pan which retains unusable residue. If a consumer 10 intends to paint an apartment with the help of friends on a weekend, for example, the number of people using rollers for the application of the same liquid coating product 36 will affect the quantity effectively required. In this case the consumer will likely be more concerned with having a sufficient quantity than in usage efficiency.

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Alternatively, while the consumer 10 may generally be assumed to desire ordering a sufficient volume of liquid coating product 36 for a given job, the volume left over is generally wasted and comprises an inconvenience in addition to needless expense. This is considered especially relevant if the liquid coating product 36 is of a particular, custom, color which was selected for a specific application and is considered useless for any other application in the foreseeable future. For all of these reasons it is considered a great benefit to the consumer 10 to be able to accurately determine the volume of liquid coating product 36 appropriate to a given application and assistance in the same which preferably accounts for as many factors as feasible is hence considered beneficial for which reason an internet based web site 16 is considered the best means of both providing information about liquid coating product 36 and assisting in the selection of both a particular, custom, color and a suitable volume of the same for a given application.

As a final example of the advantages available through use of an internet based web site 16 as the means for ordering liquid coating product 36 directly from a supplier, as represented in FIG 1 and in contrast to a telephonic or facsimile transmission ordering as represented in FIGS 3 & 4, it is mentioned that the consumer 11 equipped with a video camera 19 operably connected to a personal computer 12 possessing a modem connection 13 to a PBX may use the same to provide visual information to an internet based web site 16 including color images of the furnishings in a given room. Similarly, photographs of a room including furnishings are easily scanned and the digital representations easily provided by the consumer 10 through a personal computer 12 possessing a modem connection 13. And solid modeling of a room with furnishings which may be colored are also easily provided as digital input. Appropriate software comprising the web site 16 in this case will receive digital input from the consumer 10 and provide information to assist in product selection and may suggest one or more particular, custom, colors for the liquid coating product 36 for ordering by the consumer 10. With a suitable dimensional reference, such as a yardstick disposed flush against a wall for example, the software comprising the web site 16 may further estimate the area to be covered and recommend a suitable volume as well.

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Regardless of the means utilized for selection and ordering of liquid covering product 36 a customer order must identify the quantity of each, a delivery address, and preferably a delivery date. This comprises information which is entered into a customer order subsystem 20 maintained by a supplier which is remote to the consumer 10. As represented in FIGS 1 & 2 the customer order subsystem 20 is preferably comprised of software run by a computer 17 possessing an operable internet modem connection 13 with a PBX. In this case the web site 16 is assumed to be comprised of different software run by a server computer 17 maintained by an internet service provider which is different than the computer 17 running the software comprising the customer order subsystem 20 though this is not strictly necessary. The two sets of software might be one and the same with the server computer 17 maintaining the web site 16 also maintaining the customer order subsystem 20 or vice versa. In any case the two sets of software are preferably integrated to a degree which at minimum enables a consumer 10 to place an order and the remote supplier to obtain the information necessary to fulfill that order. The software comprising the web site 16 and the customer order subsystem 20 is effectively the same with this regard but it is also recognized that it is undesirable to have direct public access to the computer systems maintained by the supplier and the desirability of one or more firewalls erected against unwanted intrusion argues for the use of different software running on different computers 17 for the web site 16 and the customer order subsystem 20.

Similarly, while it is quite feasible to maintain both a customer order subsystem 20 and a production subsystem 21 on the same computer 17 and with the same software, it is considered desirable to separate the two subsystems 20, 21 with a firewall which, ideally, means that there is no direct line connection between the two. The customer order subsystem 20 preferably possesses a modem connection 13 with a PBX in order to receive orders through the internet. This means that the computer 17 running the software comprising the customer order subsystem 20 is vulnerable to unwanted intrusion by the public and while various measures are available and currently being developed it is considered impossible to guarantee imperviousness to undesired intrusion by the public into any computer 17 possessing an open modem connection 13 operably connected to the internet.

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For this reason it is considered desirable to separate a computer 17 based customer order subsystem 20 from a computer 17 based production subsystem 21 despite the need for information transfer between the two. The production subsystem 21 ideally governs the production line 22 in order to achieve automation and flexibility in the same. Input data comprising appropriate customer order information 51 is preferably utilized in two coordinated ways with regard to the production line 22. It is suggested that the order data be compiled and processed into parameters governing production in achievement of batching with respect to the use of liquid coating base 24 which is preferably disposed into empty containers 23, as depicted in FIGS 2& 3 and implied in FIGS 1 & 4. Batching is also recommended for the addition of colorant 25 in achievement of particular, custom, colors and it is specifically suggested that customer order information 51 be transferred, in coordination with batching, onto each open container with colorant 35, in identification of the content therein preferably including the customer name, delivery address, delivery date, and volume of each liquid coating product 36 and the number of containers 23 utilized in fulfillment of each order.

As shown in FIGS 1 - 4 the containerized liquid coating product 36, preferably carrying a label 50 with the customer order information 51 detailed above clearly printed thereon and or a bar or other digital code 52 by which such information may be readily retrieved by a scanner 37, is transferred from the end of the production line 22 to shipping 27 from which it is then taken by suitable transport 30 to the location identified by the customer delivery address 40. Shipping 27, represented simply as an area within the confines of the remote supplier 29, preferably comprises an area in which orders are assembled and packaged for delivery 'pick-up' by a commercial transport 30 service and wherein batching by order and delivery date is preferably observed. For this purpose and for effecting a change in status, both in receipt from the production line 22 and in shipment of the order, in the production subsystem 21 shipping 27 preferably possesses a computer monitor 14 with a direct line connection to the computer 17 in which the production subsystem 21 is maintained and operated.

With regard to the preferred embodiments of the principles relating to the present invention

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represented in FIGS 1 - 4 considered in contrast it is first noted that rather than utilizing an internet terminal 11 comprised of a PC 12 with an internet modem connection 13 and associated computer monitor 14 as represented in FIG 1 the consumer 10 in FIG 2 utilizes a dedicated terminal 31 located at a kiosk 32 which is preferably located within the confines of a local retailer 39. The dedicated terminal 31 is wired so that only the web site 16 maintained in representation of the remote supplier is accessible. In this case there is hence effectively no internet and the functioning of the single accessible web site 16 maintained on a internet server computer 17 may effectively be assumed by the computer 17 also maintaining the customer order subsystem 20 within the confines of the remote supplier 29. As represented in FIG 3 the consumer 10 utilizes a telephone 33 to place an order with supplier personnel 45 and in FIG 4 the consumer places an order by facsimile transmission 46 and the order is received by the remote supplier with facsimile reception 47 while in the left hand of the consumer 10 a portable internet device 41 is held which may also be utilized for the placement of an order via a web site 16 which is represented in FIGS 1 & 2.

The production line 22 of the preferred embodiments of the principles relating to the present invention represented in FIGS 1 - 4 also vary and the varying components interchanged. As represented in FIG 4 open containers 34 filled with liquid coating base material 24 obtained directly from a manufacturer may be utilized though it is preferred that more economic volumes such as a fifty-five gallon drum 55 or 1,000 liter 'tote' be obtained from a manufacturer in which case empty containers 23, represented in the other figures, of suitable size for customer order fulfillment will also be required.

In FIG 1 a railroad tank car 53 is represented from which liquid coating base 24 is transferred via a pipe line 54 into a tank in the production line 22 for dispensing into empty containers 23. In FIGS 2 & 3 empty containers 23 are similarly filled with liquid coating base 24 by the first dispensing unit in the production line 22 which in all cases proceeds with the dispensing of colorant 25 into an open container 34 with liquid coating base 24 thus achieving an open container with colorant 35.

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It is commented that the use of a dedicated terminal 31 located in a kiosk 32 within the confines of a local retailer 39 is considered especially appropriate for a remote supplier which is also a manufacturer and the step of filling empty containers 23 with liquid coating base material 24 may in this case more specifically comprises the addition of constituents of the liquid coating base 24 including solvent and binder from tanks holding each constituent separately.

It is also noted, with respect to all the preferred embodiments of the principles relating to the present invention as represented in FIGS 1 - 4, that the opening and closing of the containers 23, as well as the blending of the contents therein resulting in the containerized liquid coating product 36 is assumed in each production line 22 and that it is preferred that closure of the open containers 35 after the addition of any colorant 25 to the open container 34 filled with liquid coating base 24 be coordinated with the operation of a container identifier 26 which is represented as the addition of a label 50 upon the open container with colorant 35. It is further preferred that the container identifier 26 be controlled in coordination with control of the addition of the colorant 25 and the liquid coating base 24 by the production subsystem 21 as indicated by the direct lines between these but that the feedback data from the filling operations be utilized to ensure that the container identifier 26 operates accurately. As a further quality control measure a spectrophotometer or colorimeter may be employed to test the color of the contents of the open container with colorant 35 prior to operation of the container identifier 26 and closure effecting containerized liquid coating product 36.

As further represented in FIG 4, the consumer 10 is placing an order by facsimile transmission 46 through a PBX and the order is taken by facsimile reception 47 and converted into digital format with the use of a scanner 37 which also enters the order including customer order information 51 into a single computer 17 operating both the software comprising the customer order subsystem 20 and the software comprising the production subsystem 21. This is also the case represented in FIG 3. In both cases entrance of customer order information 51 into the customer order subsystem 20 is preferably performed with the aid of supplier personnel 45 as represented in FIG 3. While this is

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considered inferior to use of the internet through a web site 16 maintained on an internet server computer 17 as described above as being comparatively labor intensive since the computer 17 running the software comprising the customer order subsystem 20 does not require an open modem connection 13 it is not vulnerable to undesired intrusion there is no need to separate the production subsystem 21 from the customer order subsystem 20.

FIG 5 depicts a label 50 bearing customer order information 51 which is preferably, as shown, inclusive of customer name, delivery address, delivery date, identification of liquid coating base 24 and colorant 25, and both volume and number of containers 23 fulfilling the order. Other information may readily be included such as production date, the number of different containerized liquid coating products 36 comprising the order, the volume and number of containers 23 for the same, et cetera. A bar or other digital code 52 is also suggested which is readily read by a scanner 37 for verification of customer order information or retrieval of the same. Use of only a bar or other digital code 52 without textual printing of any customer order information 51 is not particularly recommended though it is certainly considered feasible, particularly if the service utilized for transport 30 is equipped with a system which can readily scan and read the customer name and delivery address at minimum.

FIGS 6 & 7, respectively, depict an empty expandable container 56 in a collapsed condition intended for filling with liquid coating base 24 and colorant 25 in the production of containerized liquid coating product 36 in the resulting full expandable container 57. An embodiment of the principles relating to the present invention utilizing such an expandable container 56, 57 preferably has preblended liquid coating base 24 dispensed from a tank with the use of a mechanism for gripping a collar 59 about an aperture in conveyance of the empty or full expandable container 56, 57. Because colorant 25 is added by the supplier and delivered directly to the consumer 10 and there is no need for reopening the full expandable container 57 after production in the form of containerized liquid product 36, it is considered advantageous economically to utilize expandable containers 56, 57 molded of flexible plastic as opposed to conventional rigid metal paint cans or rigid plastic pails for

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containerization. Especially for smaller volumes it is further considered that an empty expandible container 56 molded of flexible plastic which is essentially an envelope and readily folded flat prior to filling may be heat sealed and then shaken in mixing after the addition of colorant 25 in production of the containerized liquid coating product 36. Alternatively, a resealable closure such as a threaded collar 59 and mating cap may be utilized. In either case the full plastic container 57 is not readily suited to use directly and it is anticipated that the liquid coating product 36 contained therein will require transfer to another rigid container 23 for use and while this is considered a disadvantage in one regard it is also considered good practice generally in application of liquid coating product 36 and making the container 23 rigid would largely negate the economy achieved in the use of a flaccid plastic expandible container 56, 57 of the type depicted in FIGS 6 & 7.

The foregoing is intended to provide one practiced in the art with what is considered to be the best known manner of making and using a system in accordance with the principles relating to the present invention and is not to be interpreted in any manner as restrictive of that invention or the rights and privileges obtained by Letters Patent for which I hereby claim: